
Plurocart: a novel stem cell-based implant for articular cartilage restoration

Grant Award Details

Plurocart: a novel stem cell-based implant for articular cartilage restoration

Grant Type: Late Stage Preclinical Projects

Grant Number: CLIN1-12880

Investigator:

Name:	Frank Petrigliano
Institution:	University of Southern California
Type:	PI

Disease Focus: Bone or Cartilage Disease, Cartilage defect

Human Stem Cell Use: Embryonic Stem Cell

Award Value: \$5,999,782

Status: Pre-Active

Grant Application Details

Application Title: Plurocart: a novel stem cell-based implant for articular cartilage restoration

Public Abstract:**Therapeutic Candidate or Device**

Plurocart consists of pluripotent stem cell-derived chondrocytes, seeded onto a scaffold; it is intended to treat damaged cartilage in the knee joint.

Indication

Plurocart is intended to be surgically implanted in the knee and regenerate injured cartilage - relieving pain and improving function of the joint.

Therapeutic Mechanism

Plurocart is surgically implanted directly into area of cartilage damage in the knee. Once implanted, the cartilage regenerating cells delivered on the scaffold act by making hyaline cartilage while simultaneously prompting local cells surrounding the defect to participate in repair of the lesion through the secretion essential factors. Consequently, this therapy can replace injured cartilage and prevent further degeneration of the surrounding cartilage in the joint.

Unmet Medical Need

FDA approved treatments for articular cartilage injury are costly, involve complex logistics, and often do not restore functional hyaline cartilage. Plurocart aims to address this need by providing an inexpensive, off-the-shelf therapy with the capacity to regenerate functional hyaline cartilage.

Project Objective

Successful Plurocart IND submission to the FDA

Major Proposed Activities

- Manufacture pluripotent stem cell (PSC)-derived cartilage implants (Plurocart) compliant with the GLP release criteria for tumorigenicity studies
- Assess the potential toxicity, biodistribution and tumorigenicity of Plurocart in an immunocompromised nude rat
- Manufacture of two fully GMP grade compliant lots of Plurocart prior to IND filing and subsequent Phase 1 clinical trial

Statement of Benefit to California:

Plurocart was conceived and developed in the state of California at the University of Southern California. This home-grown cell therapy has the potential to treat cartilage defects and forestall arthritis in our state's citizens. Furthermore, the manufacture of these implants within the state of California has the potential to bring revenue and manufacturing jobs into the state in a highly lucrative biotechnology sector.

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